INITIAL REVIEW ENGINEERING REPORT [redacted]
PMN: 18-0100

Final 10/4/2018
ENGINEER: Jon \ LMK
PV (kg/yr): [redacted]

SUBMITTER: Allnex USA Inc.

USE: [redacted]

OTHER USES: No other uses were found for the PMN material.

MSDS: Yes Label: No

Gen Eqpt: Eye Protection: Wear eye/face protection such as chemical splash proof goggles or face shield. Eyewash equipment and safety shower should be provided in areas of potential exposure. // Skin Protection: Avoid skin contact. Wear impermeable gloves and suitable protective clothing. Barrier creams may be used in conjunction with the gloves to provide additional skin protection. // Hand Protection: Wear protective gloves. Recommendations are listed below. Other protective materials may be used based on user's own risk assessment. Barrier creams may help to protect the exposed areas of the skin, they should however not be| applied once exposure has occurred. Replace gloves immediately when torn or any change in appearance (dimension, color, flexibility etc.) is noticed.| Gloves for repeated or prolonged exposure - non exhaustive list: Nitrile rubber (NBR), thickness: > 0.56 mm, break through time: up to 480 min Gloves for short term exposure/splash protection - non exhaustive list: Nitrile rubber (NBR), thickness: 0.1 mm, break through time: up to 30 min The chemical resistance depends on the type of product and amount of product on the glove. Therefore gloves need to be changed when in contact with chemicals. Not suitable gloves - non exhaustive list: Latex gloves Due to many conditions (e.g. temperature, abrasion) the practical usage of a chemical protective glove in practice may be much shorter than the permeation time determined through testing. Use PE gloves as under gloves for difficult situations like for instance: high exposure, unknown composition or unknown properties of the chemicals.

Respirator: For operations where inhalation exposure can occur use an approved respirator. Recommendations are listed below. Other protective respiratory equipment may be used based on user's own risk assessment. Recommended respirators include those certified by NIOSH. Recommended: Full Face Mask with organic vapor cartridge, Type A filter (BP >65°C)

Health Effects: Causes skin irritation. Causes serious eye irritation. May cause an allergic skin reaction.

TLV/PEL:

CRSS :
Chemical Name: [redacted]

S-H20: Dispersible g/L @
VP: 1.0E-6 torr @
MW: 1875.00 3.40%<500 25.80%<1000
Physical State and Misc CRSS Info:
Neat: [redacted] (est.) Mfg: NK - Imported Proc/Form: [redacted], [redacted] End Use: [redacted]
Submitted data: NAVG MW = 1875 by GPC with 3.4% less than 500 and 25.8% less than 1000 [redacted] density = 1.1 g/cc. The submitted MSDS is for PMN material in aqueous formulation. An IR spectrum was not provided, however, since the PMN material [redacted], it can be assumed [redacted]. Estimated data: high boiling point and negligible vapor pressure [redacted] dispersible in water [redacted]. [redacted] Continued on page 6 of this report.

Consumer Use: No
SAT (concerns) :
Related Cases and Misc SAT Info:
Analogs: [redacted]
Migration to groundwater: Negligible
PBT rating: P3B1T
Health:
Eco: 1 No releases to water

OCCUPATIONAL EXPOSURE RATING: [redacted]

NOTES & KEY ASSUMPTIONS:
Occupational exposure and environmental releases were estimated using the 9/30/2013 version of ChemSTEER tool. Input to ChemSTEER tool includes information from: the PMN submission, physical / chemical properties, relevant past cases, and the ESD for the Application of UV Curable Coatings, Inks, and Adhesives. This submission is import only, therefore, MFG is not assessed. SAT data were not available, therefore, a full assessment was done. // The following same-submitter, similar-use past cases were referenced for consistency: [redacted] // PROC: This IRER assesses releases from drum cleaning and equipment cleaning [redacted] It also assesses dermal exposures from unloading [redacted] and sampling. // USE: This IRER assesses releases from drum cleaning and [redacted] to water, incineration, or landfill and from equipment cleaning to incineration or landfill [redacted]. It also assesses inhalation exposure from [redacted] and dermal exposure from unloading [redacted]

POLLUTION PREVENTION CONSIDERATIONS:
No Pollution Prevention information was provided by the submitter.

EXPOSURE-BASED REVIEW: No

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PROC: [redacted]

Number of Sites/ Location: [redacted]

[redacted]

Days/yr: [redacted]

Basis: [redacted].

Process Description: [redacted]

(per submission and CRSS)

ENVIRONMENTAL RELEASES ESTIMATE SUMMARY

IRER Note: The daily releases listed for any source below may coincide with daily releases from the other sources to the same medium.

Water or Incineration or Landfill
High End: [redacted]

to: [redacted]

from: Cleaning [redacted] Residuals from Drums Used to Transport the Raw Material

basis: EPA/OPPT Drum Residual Model, CEB standard 3% residual. [redacted]. RAD assesses this release to uncertain media using the standard model as conservative.

Water or Incineration or Landfill
Conservative: [redacted]

to: [redacted]

from: Equipment Cleaning Losses of [redacted] from a Single, Large Vessel

basis: EPA/OPPT Single Vessel Residual Model, CEB standard 1% residual. [redacted] RAD assesses this release to uncertain media using the standard model as conservative.

RELEASE TOTAL
[redacted]

OCCUPATIONAL EXPOSURES ESTIMATE SUMMARY
Tot. # of workers exposed via assessed routes: [redacted]
Basis:

Inhalation:

negligible (VP < 0.001 torr); mist generation not expected during this operation.

Dermal:

Exposure to Liquid [redacted]
High End:
> Potential Dose Rate: [redacted]
> Lifetime Average Daily Dose: [redacted]
> Average Daily Dose: [redacted]
> Acute Potential Dose: [redacted]
Number of workers (all sites) with dermal exposure: [redacted]
Basis: Unloading [redacted] Raw Material from Drums; EPA/OPPT 2-Hand Dermal Contact with [redacted] Model. Per November 2016 RAD guidance, default parameters for this model were updated: body weight (BW) was updated from 70 to 80 kg and Averaging Time over a Lifetime (ATc) was updated from 70 to 78 years.

Exposure to Liquid [redacted]
High End:
> Potential Dose Rate: [redacted]
> Lifetime Average Daily Dose: [redacted]
> Average Daily Dose: [redacted]
> Acute Potential Dose: [redacted]
Number of workers (all sites) with dermal exposure: [redacted]
Basis: Sampling [redacted] Product; EPA/OPPT 1-Hand Dermal Contact with [redacted] Model. Per November 2016 RAD guidance, default parameters for this model were updated: body weight (BW) was updated from 70 to 80 kg and Averaging Time over a Lifetime (ATc) was updated from 70 to 78 years.

INITIAL REVIEW ENGINEERING REPORT [redacted]

PMN: 18-0100

USE: [redacted]

Number of Sites/ Location: [redacted]

[redacted]

Days/yr: [redacted]

Basis: [redacted]

Process Description: [redacted] (per submission, ESD, and CRSS).

ENVIRONMENTAL RELEASES ESTIMATE SUMMARY

IRER Note: The daily releases listed for any source below may coincide with daily releases from the other sources to the same medium. Per the ESD for the Application of Radiation Curable Coatings, Inks, and Adhesives, raw material sampling wastes are expected to be released to water, incineration, or landfill; due to the lack of industry specific data, this release is not estimated. It should be noted that EPA expects releases of the chemical from raw material sampling activities to be relatively low in comparison to the other sources of release in the application process.

Water or Incineration or Landfill
High End: [redacted]

to: water, incineration, or landfill (per ESD)

from: Cleaning [redacted] Residuals from Drums Used to Transport the Raw Material

basis: EPA/OPPT Drum Residual Model, CEB standard 3% residual. [redacted] Per the ESD on the Application of Radiation Curable Coatings, Inks, and Adhesives, RAD assumes container cleaning may involve an organic and water wash, which could be released to water, incineration, or landfill, per ESD. [redacted] EPA model of 3% LF is used.

Water or Incineration or Landfill
Output 1: [redacted]

Output 2: [redacted]

to: Water, Incineration, or Landfill (per ESD)

from: [redacted]

basis: User-Defined Loss Rate Model. [redacted] ESD recommends EPA/OPPT Generic Model to Estimate Application Loss Releases from [redacted] and [redacted]). The model estimates a transfer efficiency range of 90 to 98 percent during application. Release is to water, incineration, or land.

Incineration or Landfill
Conservative: [redacted]

to: Incineration or Landfill (per ESD)

from: Equipment Cleaning Losses of [redacted] from Multiple Vessels

basis: EPA/OPPT Multiple Process Vessel Residual Model, CEB standard 2% residual. [redacted]. Per the ESD on the Application of Radiation Curable Coatings, Inks, and Adhesives, industry specific information estimates approximately one percent of used radiation curable product is lost during equipment cleaning at the application site with releases typically sent to incineration or land. RAD recommends using the EPA/OPPT Multiple Process Vessel Residual Model to conservatively estimate process losses from equipment cleaning if additional site specific information is not available.

RELEASE TOTAL
[redacted]

OCCUPATIONAL EXPOSURES ESTIMATE SUMMARY
Tot. # of workers exposed via assessed routes: [redacted]
Basis:

Inhalation:

Exposure to Particulate (non-volatile) (Class I)
Low End of Range:
> Potential Dose Rate: [redacted]
> Lifetime Average Daily Dose: [redacted]
> Average Daily Dose: [redacted]
> Acute Potential Dose: [redacted]
High End of Range:
> Potential Dose Rate: [redacted]
> Lifetime Average Daily Dose: [redacted]
> Average Daily Dose: [redacted]
> Acute Potential Dose: [redacted]
Number of workers (all sites) with inhalation exposure: [redacted]
Basis: [redacted]; EPA/OPPT UV [redacted] Inhalation Model (non-volatiles); airborned particulate concentration (KcK is based on 8-hour TWA personal monitoring data. Per November 2016 RAD guidance, default parameters for this model were updated: body weight (BW) was updated from 70 to 80 kg and Averaging Time over a Lifetime (ATc) was updated from 70 to 78 years. [redacted]

NOTE: The respirator class is: I. Particulate (including solid or liquid droplets).

INHALATION MONITORING DATA REVIEW

1)	Uncertainty (estimate based on model, regulatory limit, or data not specific to industry):	Yes
2)a)	Exposure level > 1 mg/day?	No
	OR	
b)	Hazard Rating for health of 2 or greater?	No

=> Inhalation Monitoring Data Desired? **No**

Dermal:

Exposure to Liquid [redacted]
High End:
> Potential Dose Rate: [redacted]
> Lifetime Average Daily Dose: [redacted]
> Average Daily Dose: [redacted]
> Acute Potential Dose: [redacted]
Number of workers (all sites) with dermal exposure: [redacted]
Basis: Unloading [redacted] Raw Material from Drums; EPA/OPPT 2-Hand Dermal Contact with [redacted] Model. Per November 2016 RAD guidance, default parameters for this model were updated: body weight (BW) was updated from 70 to 80 kg and Averaging Time over a Lifetime (ATc) was updated from 70 to 78 years. |

CBI: No

MEMORANDUM of TELEPHONE CONVERSATION (Contains No TSCA CBI)

CALL BY:

Organization:

CALL TO:

Organization:

Date:

Time:

Phone:

Concerning what?

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